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JAMES M. STOVER
TERADATA CORPORATION
2835 MIAMI VILLAGE DRIVE
MIAMISBURG, OH 45342

EXAMINER	
TRUONG, CAM Y T	
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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/767,681
Filing Date: January 29, 2004
Appellant(s): LUO ET AL.

For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 7/22/2008 appealing from the Office action mailed 2/8/2008.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,714,943	Ganesh et al	1-2001
US 6,353,828	Ganesh et al	5-1999
US 5,940,828	Anaya et al	11-1997

US, 5,442,785	Roffe et al	3-1994
US 2002/0133494	Goedken	5-2002
US 6,581,205	Cochrane	12-1999
US 6,574,717	Ngai et al	5-2001
US 6,678,701	Garth et al	1-2000
US 6,567816	Dessai et al	3-2000
US 6,151,601	Papierniak et al	11-2000

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Objections

3. .Claims 20-22 are objected to because of the following informalities:

The phrase "adapted to" in claims 20-22, suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation. The following are examples of language that may raise a question

as to the limiting effect of the language in a claim:

(A) statements of intended use or field of use,

(B) "adapted to" or "adapted for" clauses,

(C) "wherein" clauses, or

(D) "whereby" clauses.

This list of examples is not intended to be exhaustive. See also MPEP § 2111.04.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-4, 12-15, 22, 20 are rejected under 35 U.S.C. 103(a) being unpatentable over Ganesh et al (or hereinafter "Ganesh") (US 6353828) in view Ganesh et al (or hereinafter "Ganesh43") (US 6714943).

As to claim 1, Ganesh teaches the claimed limitations:

"a method for use with a database system that stores a join view associated with plural base relations" as (col. 3, lines 15-20), comprising:

"receiving modification operations that modify at least two of the base relations of the join view, wherein the at least two base relations comprise a first base relation and a second base relation" as (col. 3, lines 38-46);

"schedule transactions to avoid execution of modification operations of more than one of the at least two base relations at one time in the database system" as (col. 4, lines 15-45).

Ganesh does not explicitly teach the claimed limitations "performing partitioning of the received modifications operations by submitting at least some of the modification operations operating on the first base relation to a first session, and submitting at least

another of the modification operations that operate on the second based relation to a second session; "grouping the at least some of the modification operations in the first session operating on the first base relation into a first transaction; wherein the at least another modification operation in the second session is part of a second transaction".

Ganesh43 teaches transaction T5 commits at time 25 having executed the following statements: UPDATE Emp_Table SET Emp_value=Emp_value+1 WHERE emp_name=`Smith`; DELETE FROM Emp_Table WHERE emp_name=`Miller'. Statements are represented as modification operations that are grouped in the transaction T5 (col. 5, lines, 1-20, fig. 2). Transactions 1-5 are scheduled (col. 7, lines 22-40).

Ganesh's 43 teaches for the purposes of illustration, consider the following sequence of transactions which executes the indicated database statements (in SQL-based pseudocode) against a database table "Emp_Table" having the structure Emp_Table (emp_name, emp_value): (15) At commit time 5--Transaction T1 commits having executed the following statement: INSERT INTO Emp_Table VALUES (`Smith`, X); At commit time 10--Transaction T2 commits having executed the following statement: INSERT INTO Emp_Table VALUES (`Jones`, Y); At commit time 15--Transaction T3 commits having executed the following statements: (20) UPDATE Emp_Table SET Emp_value=X+1 WHERE emp_name=`Smith`; UPDATE Emp_Table SET Emp_value=Y+1 WHERE emp_name=`Jones (col. 4, lines 60-67; col. 5, lines 20). The above information shows that statements are divided for execution for each commit time as each session.

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Ganesh43's teaching of assigning each transaction including statements to each commit time and transaction T5 commits at time 5 having executed the following statements to Ganesh's system in order to prevent conflict when multiple transactions trying to modify database records at the same time, minimize network traffic, achieve maximum performance (Ganesh49, col. 9, line 40-41) and further to allow users to track transactions in sessions in a sequence time.

As to claim 2, Ganesh teaches the claimed limitations:

"determining that the first transaction conflicts with the second modification operation based on the first and second transaction based on the first and second transactions modifying more than one base relation of the join view" as (fig. 6, col. 3, lines 38-67; col. 4, lines 1-35); and

"selecting one of first and second transaction for execution in the database system" as (col. 4, lines 15-45).

As to claim 3, Ganesh teaches the claimed limitations:

"wherein selecting one of the first and second transactions comprises selecting the first transaction" as (col. 4, lines 25-35).

Ganesh does not explicitly teach the claimed limitation "storing the second transaction in a queue".

Ganesh43 teaches storing transactions in a table as a queue (fig. 8).

Since transaction TXA has a dependent SCN of "0", this transaction is not dependent upon any other transactions, and can be ordered before, after or parallel to any other transaction, subject to the ordering/dependency constraints of these other transactions. Transactions TXB, TXC, and TXE all have dep_SCN values of 5; therefore, these transactions must be scheduled to begin after all other transactions having SCN values of 5 or less have completed and committed (col. 16, lines 66-67; col. 17, lines 1-30).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Ganesh43's teaching of storing transactions in a table, transactions must be scheduled to begin after all other transactions having SCN values of 5 or less have completed and committed and to Ganesh's system in order to order to scheduling the transactions for preventing conflict when multiple transactions trying to modify database records at the same time and further minimize network traffic and achieve maximum performance (col. 9, line 40-41).

As to claim 4, Ganesh does not explicitly teach the claimed limitation "waiting for the first transaction to complete execution before scheduling the second transaction for execution".

Ganesh43 teaches Since transaction TXA has a dependent SCN of "0", this transaction is not dependent upon any other transactions, and can be ordered before, after or parallel to any other transaction, subject to the ordering/dependency

constraints of these other transactions. Transactions TXB, TXC, and TXE all have dep_SCN values of 5; therefore, these transactions must be scheduled to begin after all other transactions having SCN values of 5 or less have completed and committed (col. 16, lines 66-67; col. 17, lines 1-30).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Ganesh43's teaching to Ganesh's system in order to order to scheduling the transactions for preventing conflict when multiple transactions trying to modify database records at the same time and further minimize network traffic and achieve maximum performance (col. 9, line 40-41).

As to claim 12, Ganesh teaches the claimed limitations:

"receiving modification operations that modify at least two of the base relations of the join view, wherein the at least two base relations comprise a first base relation and a second base relation" as (col. 3, lines 38-46);

"schedule the transactions to avoid execution of transactions of more than one of the at least two base relations of the join view (col. 4, lines 15-45).

Ganesh does not explicitly teach the claimed limitation "perform partitioning of the received modification operations by submitting at least some of the modification operations operating on the first base relation to a first session, and submitting at least another of the modification operations that operate on a second base relation to a second session, group the at least some of the modification operations in the first

session operating on the first base relation into a first transaction, wherein the at least another modification operation in the second session is part of a second transaction".

Ganesh's 43 teaches for the purposes of illustration, consider the following sequence of transactions which executes the indicated database statements (in SQL-based pseudocode) against a database table "Emp_Table" having the structure Emp_Table (emp_name, emp_value): (15) At commit time 5--Transaction T1 commits having executed the following statement: INSERT INTO Emp_Table VALUES (`Smith`, X); At commit time 10--Transaction T2 commits having executed the following statement: INSERT INTO Emp_Table VALUES (`Jones`, Y); At commit time 15--Transaction T3 commits having executed the following statements: (20) UPDATE Emp_Table SET Emp_value=X+1 WHERE emp_name=`Smith`; UPDATE Emp_Table SET Emp_value=Y+1 WHERE emp_name=`Jones (col. 4, lines 60-67; col. 5, lines 20). The above information shows that statements are divided for execution for each commit time as each session.

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Ganesh43's teaching of assigning each transaction including statements to each commit time and transaction T5 commits at time 25 having executed the following statements to Ganesh's system in order to prevent conflict when multiple transactions trying to modify database records at the same time, minimize network traffic, achieve maximum performance (Ganesh49, col. 9, line 40-41) and further to allow users to track transactions in sessions in a sequence time.

Claim 13 is rejected under the same reason as discussed in claim 2.

Claim 14 is rejected under the same reason as discussed in claim 3.

Claim 15 is rejected under the same reason as discussed in claim 4.

As to claim 22, Ganesh teaches the claimed limitations:

"a controller having one or more processor" as (col. 7, lines 5-20),

"to receive modification operations to modify plural base relations of a join view, the modification operations comprising modification operations to modify a first base relation of the join view, and modification operations to modify a second base relation of the join view" as col. 3, lines 38-46);

"re-order received modification operations to avoid concurrent execution of modification operations of more than one of the plural base relations of the join view" as (fig. 6, col. 3, lines 38-67; col. 4, lines 1-15);

"wherein certain of the modification operations on the first base relation comprise medication of set of one or more types of the first base relation" as (col. 4, lines 15-65);

"and submit the transaction to a database system separate from the first system for execution" as (col. 1, lines 45-67; col. 2, lines 1-10; col.3, lines 45-55).

Ganesh does not explicitly teach the claimed limitations "re-ordering to cause modification operations on the first base relation of the join view to be scheduled for execution, and to cause modification operations on the second base relation to be queued for execution after completion of the modification operations on the first base

relation; wherein the controller is adapted to group the modification operations on the set of one or more tuples of the first base relation into a transaction".

Ganesh43 teaches storing a transaction 804 (a second modification operation) and a transaction 806 (a third modification operation) in a table as a queue (fig. 8).

Ganesh43 teaches Since transaction TXA has a dependent SCN of "0", this transaction is not dependent upon any other transactions, and can be ordered before,after or parallel to any other transaction, subject to the ordering/dependency constraints of these other transactions. Transactions TXB, TXC, and TXE all have dep_SCN values of 5; therefore, these transactions must be scheduled to begin after all other transactions having SCN values of 5 or less have completed and committed (col. 16, lines 66-67; col. 17, lines 1-30).
Ganesh43 teaches transaction T5 commits at time 25 having executed the following statements: UPDATE Emp_Table SET Emp_value=Emp_value+1 WHERE emp_name=`Smith`; DELETE FROM Emp_Table WHERE emp_name=`Miller'. Statements are represented as modification operations that are grouped in the transaction T5 (col. 5, lines, 1-20, fig. 2). Transactions 1-5 are scheduled (col. 7, lines 22-40).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Ganesh43's above teaching to Ganesh's system in order to prevent conflict when multiple transactions trying to modify database records at the same time, minimize network traffic, achieve maximum performance (Ganesh49, col. 9, line 40-41) and further to allow users to track transactions.

As to claim 20, Ganesh teaches the claimed limitation "wherein the controller is adapted to identify the modification operations on the second base relation as conflicting with modification operations on the first base relation in response to determining that the modification operations on the second base relation are modifying a different base relation of the join view than the modification operations on the first base relation" as (col. 10, lines 45-67).

6. Claims 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh et al (or hereinafter "Ganesh") (US 6353828) in view of Ganesh et al (or hereinafter "Ganesh43") (US 6714943) and further in view of Anaya et al (or hereinafter "Anaya") (US 5940828).

As to claim 9, Ganesh does not explicitly teach the claimed limitations "storing pending transactions in plural queues corresponding to respective plural session of the database system; and selecting one of the pending transactions from the queues to schedule for execution in the database system based on whether the one pending transaction conflicts with one or more executing transactions in the database system".

Anaya teaches storing modification transactions in plural queues (figs. 2-10).

Ganesh43 teaches scheduling transactions (col. 17, lines 1-30).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Anaya's teaching of storing modification transactions in

plural queues and Ganesh43's teaching of scheduling transactions to avoid conflicts between transactions to Ganesh's system in order to minimize transactions.

As to claim 10, Ganesh teaches the claimed limitation "determining that the one pending transaction conflicts with the one or more executing transactions in response to determining that the one pending transaction modifies a different one of the base relations of the join view than a base relation of the join view modified by an executing transaction" as (col. 10, lines 45-67).

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh et al (or hereinafter "Ganesh") (US 6353828) in view of Ganesh et al (or hereinafter "Ganesh43") (US 6714943) and further in view of Anaya et al (or hereinafter "Anaya") (US 5940828) and Roffe et al (or hereinafter "Roffe") (US 5442785).

As to claim 11, Ganesh does not explicitly teach the claimed limitation "applying a technique to prevent starvation of one of the pending modification operations in response to determining that the one pending modification operation has been in one of the queues for longer than predetermined time period".

Roffe teaches FIG. 16 is a flow chart for the Timeout Function that checks the Message Response Wait Queue for suspended application programs which are waiting for response messages. The Timeout Function is used to detect processes which have been waiting for an extended period of time for one or more responses.

When a program has been suspended for longer than a predetermined period of time, theTimeout Function will resume execution of the suspended program (fig. 16).

It would have been obvious to a person of an ordinary skill in the art at the time invention was made to apply Roffe's teaching of the Timeout Function that checks the Message Response Wait Queue for suspended application programs which are waiting for response messages. The Timeout Function is used to detect processes, which have been waiting for an extended period of time for one or more responses. When a program has been suspended for longer than a predetermined period of time, theTimeout Function will resume execution of the suspended program to Ganesh's system in order to avoid deadlock situations and data corruption.

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh et al (or hereinafter "Ganesh") (US 6353828) in view of Ganesh et al (or hereinafter "Ganesh43") (US 6714943) and Anaya et al (or hereinafter "Anaya") (US 5940828).and further in view of Goedken (US 2002/0133494).

As to claim 11, Ganesh does not explicitly teach the claimed limitation "applying a technique to prevent starvation of one of the pending modification operations in response to determining that the one pending modification operation has been in one of the queues for longer than predetermined time period".

Goedken teaches the queue manager 134 determines if the current message has been pending for longer than a predetermined period of time. Preferably, the queue manager 134 make this determination by cooperating with the message

mapper 126 to subtract the value of the "Asked" timestamp field in the message map database 118 from the current date and by comparing the result to a predetermined time period (e.g., 10 days). The predetermined time period may be fixed for all messages or it may be defined by the information request message 18 (paragraph [0191]).

It would have been obvious to a person of an ordinary skill in the art at the time invention was made to apply Goedken's teaching of the queue manager 134 determines if the current message has been pending for longer than a predetermined period of time to Ganesh's system in order to avoid deadlock situations and data corruption.

9. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh et al (or hereinafter "Ganesh") (US 6353828) in view of Ganesh et al (or hereinafter "Ganesh43") (US 6714943) and further in view of Cochrane et al (or hereinafter "Cochrane") (US 6581205).

As to claim 18, Ganesh teaches the claimed limitations:

"in response to a particular one of modification operations to modify one of the base relations, placing an exclusive lock on the one base relation" as (col. 9, lines 20-30).

Ganesh does not explicitly teach the claimed limitation" placing a predefined lock on the join view, the predefined lock conflicting with each of a shared lock and an exclusive lock placed on the join view but the predefined lock not conflicting with another predefined lock placed on the join view".

Cochrane teaches placing a U-lock on the record in the materialized view. The U-lock conflicting with shared lock (col. 9, lines 50-60).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Gochrane's teaching of placing a U-lock on the record in the materialized view. The U-lock conflicting with shared lock to Ganesh's system in order to avoiding deadlocks with other transactions that modifying at least one base table of the materialized view and to improve concurrency with other transactions.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh et al (or hereinafter "Ganesh") (US 6353828) in view of Ganesh et al (or hereinafter "Ganesh43") (US 6714943) and further in view of Ngai et al (or hereinafter "Ngai") (US 6574717).

As to claim 21, Ganesh teaches the claimed limitations:

"identify modification operations on the first base relation that modify distinct portions of the first base relation" as (col. 4, lines 50-60);

Ganesh does not explicitly teach the claimed limitations "a first system and wherein the controller is adapted to open plural sessions with a database system separate from the first system, submit the identified the modification operations that modify distinct portions of the first base relation through different sessions for concurrent execution in the database system".

Ngai teaches in step 232 the number of sessions is determined. In one embodiment involving a licensed database system, the number of sessions is the

number of users who may use a database at one time according to the license for the database system. In another embodiment, the number of sessions is a system parameter determined during configuration to limit the number of concurrent users for performance reasons. The number of sessions is determined because the number of transactions executed concurrently by an instance, and consequently the amount of undo storage space used, is expected to depend on the maximum number of concurrent users (col. 14, lines 15-30).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Ngai's teaching of the number of sessions is determined. In one embodiment involving a licensed database system, the number of sessions is the number of users who may use a database at one time according to the license for the database system. In another embodiment, the number of sessions is a system parameter determined during configuration to limit the number of concurrent users for performance reasons. The number of sessions is determined because the number of transactions executed concurrently by an instance, and consequently the amount of undo storage space used, is expected to depend on the maximum number of concurrent users to Ganesh's system in order to allow resources to be recycled and allocated for new uses by other entities in a computer system, but also guarantee the resources are retained in a given state for consistent use by other entities, even after the entity terminates that first had the resource allocated and prevent network traffic when two transaction assigned in the same session.

11. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh et al (or hereinafter "Ganesh") (US 6353828) in view of Ganesh et al (or hereinafter "Ganesh43") (US 6714943) and further in view of Garth et al (or hereinafter "Garth") (US 6678701).

As to claims 23, Ganesh does not explicitly teach the claimed limitation "wherein the controller comprise a load utility to submit the modification operations to a database system".

Garth teaches a load utility (col. 1, lines 60-65).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Garth's teaching of a load utility to Ganesh's system in order to execute all operations in a database without conflicting.

12. Claims 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh et al (or hereinafter "Ganesh") (US 6353828) in view of Ganesh et al (or hereinafter "Ganesh43") (US 6714943) and further in view of Garth et al (or hereinafter "Garth") (US 6678701), and Desai et al (or hereinafter "Desai") (US 6567816).

As to claim 24, Ganesh does not explicitly teach the claimed limitation "a continuous load utility".

Desai teaches load utility have to extract the data from the columns in the record that correspond to the index key and then add such data to the index columns (col. 5, lines 45-50).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Desai's teaching of load utility have to extract the data from the columns in the record that correspond to the index key and then add such data to the index columns to Ganesh's system in order to extract the data from a database.

As to claim 25, Ganesh does not explicitly teach the claimed limitation "the load utility comprise a first load utility, and the controller comprises a second load utility to concurrently submit other modification operations to the database system".

Garth teaches load utilities (col. 1, lines 60-65).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Garth's teaching of a load utility to Ganesh's system in order to load operations for scheduling executing all operations in a database without conflicting.

13. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ganesh et al (or hereinafter "Ganesh") (US 6353828) in view of Ganesh et al (or hereinafter "Ganesh43") (US 6714943) and further in view of Garth et al (or hereinafter "Garth") (US 6678701), Desai et al (or hereinafter "Desai") (US 6567816) and Papierniak et al (or hereinafter "Papierniak") (US 6151601).

As to claim 26, Ganesh does not explicitly teach the claimed limitation "plural platforms on which corresponding first and second load utilities are executable".

Papiemiak teaches platforms for corresponding to load utilities (abstract, col. 9, lines 15-20).

It would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Ganesh's teaching of platforms for corresponding to load utilities to Ganesh's system in order to improve executing load utilities quickly without traffic.

(10) Response to Argument

A. Appellants argued that there is no hint given in the cited passages of partitioning of the different modification operations operating on different base relations into first and second sessions, Ganesh'943 does not teach the concept of partitioning into first and second session.

Examiner respectfully disagrees. Ganesh'943 teaches when ordering transactions, TXC is always placed later than any transactions having a SCN of 10 or less (col. 4, lines 10-13). As shown in figures 3, 7, 10A, each transaction has one or more statements. Transactions are divided or partitioned into a plurality of commit times for operating on Dept_table and Emp_table.

Since statements are within transactions; thus, when transactions are partitioned into commit times, the statements are partitioned into commit times too.

For example, in figure: 7

At commit time =5 Transaction TXA having executed the following statements:

INSERT INTO Dept_Table VALUES (`finance`, `NY`);

INSERT INTO Dept_Table VALUES (`legal`, `CA`);

INSERT INTO Dept_Table VALUES (`sales`, `MI`) (col. 14, lines 34-40);

At commit time =10, transaction TXB has executed the following statement deleting row 720 'finance'.

At commit time = 15, transaction TXC has executed the following statement deleting row 722 (col. 13, lines 57-67; col. 14, lines 1-5; col. 14, lines 34-40);

At commit time =25, transaction T 5 having executed the following statement:

UPDATE Emp_Table SET Emp_value=Emp_value+1 WHERE emp_name=`Smith`;

DELETE FROM Emp_Table WHERE emp_name=`Miller`(col. 7, lines 1-10).

As indicated above the statements of the transaction TXA are submitted to commit time = 5 (as first session) to operate on Dept_table (as the first base relation). The statements of transaction T5 are submitted to commit time=25 (as second session) to operate on Emp_Table (as the second base relation).

Statements such as insert, delete and update are represented as different modification operations. Dept_table and Emp_table are represented as different base

relations or first base relation and second base relation. Commit time = 5 is represented as first session. Commit time =25 is represented as second session.

Thus, Ganesh'943 teaches the claimed limitation "partitioning of the different modification operations operating on different base relations into first and second sessions".

B. Appellants argued that Ganesh'943 does not teach the following clause of claim 1: grouping the at least some of modification operations in the first session operating on the first base relation into a first transaction.

Examiner respectfully disagrees. Ganesh'943 teaches at commit time =5 Transaction TXA having executed the following statements:

INSERT INTO Dept_Table VALUES (`finance`, `NY`);

INSERT INTO Dept_Table VALUES (`legal`, `CA`);

INSERT INTO Dept_Table VALUES (`sales`, `MI`) (fig. 7, col. 14, lines 34-40).

Clearly, the statements such as INSERTS are grouped in the transaction TXA at the commit time =5 for operating on the Dept_Table.

The insert statements are represented as modification operations. The commit time= 5 is represented as the first session. The Dept_table is represented as the first base relation.

Thus, Ganesh'943 teaches the concept of grouping the at least some of modification operations in the first session operating on the first base relation into a first transaction as recited in claim 1.

C. Appellants argued that the only basis for assertion of obviousness made by Examiner is based on impermissible hindsight, since a person of ordinary skill in the art looking at the objective teachings of Ganesh'828 and Ganesh'943 would not have been led to the claimed invention. It is respectfully submitted that the obviousness rejection of claim 1 and its dependent claims is defective.

Examiner respectfully disagrees.

In view of KSR holding that *"any* need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed," 127 S. Ct. at 1742, (emphasis added), it is clear that the second part of the analogous-art test as stated in *Clay*, *supra*, must be expanded to require a determination of whether the reference, even though it may be in a different field from that of the inventor's endeavor, is one which, because of the matter with which it deals, logically would have commended itself to an artisan's (not necessarily the inventor's) attention in considering *any* need or problem known in the field of endeavor. Furthermore, although under *KSR* it is not always necessary to identify a known need or problem as a motivation for modifying or combining the prior art, it is nevertheless always necessary that the prior art relied on to prove obviousness be analogous. *See KSR,* 127 S. Ct. at 1740, ("The Court [in *United States v. Adams,* 383 U.S. 39, 40 (1966)] recognized that when a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another *known in thefield,* the combination must do more than yield a predictable result.") (emphasis added). *See also Sakraida,* 425 U.S. at 280 ("Our independent examination of that

evidence persuades us of its sufficiency to support the District Court's finding 'as a fact that each and all of the component parts of this patent.., were old and well-known throughout the dairy industry long prior to the date of the filing of the application for the Gribble patent.'").

In this case, the claim 1 of the instant application recites "receiving modification operations that modify at least two of the base relations of the join view; performing partitioning of the received modification operations by submitting at least some of the modification operations operating on the first base relation to a first session, and submitting at least another of the modification operations that operate on the second base relation to a second session".

Similarly:

Ganesh' 828 is related to using two transactions for modifying base tables T1 and T2 of materialized view T12 as in Fig. 6.

Ganesh'943 is related to using multiple transaction including modification operations such as statement for modifying base tables (figs. 3 &7, col. 6, lines 27-35).

Importantly, Ganesh'943 discloses when ordering transactions, TXC is always placed later than any transactions having a SCN of 10 or less (col. 4, lines 10-13). As shown in figures 3, 7, 10A, there are plurality transactions, each transaction includes one or more statements. Transactions are divided or partitioned into a plurality of commit times for operating on Dept_table and Emp_table. Since statements are within

transactions; thus, when transactions are partitioned into commit times, the statements are partitioned into commit times too.

For example, in figure: 7

At commit time =5 Transaction TXA having executed the following statements:

INSERT INTO Dept_Table VALUES (`finance`, `NY`);

INSERT INTO Dept_Table VALUES (`legal`, `CA`);

INSERT INTO Dept_Table VALUES (`sales`, `MI`) (col. 14, lines 34-40).

Clearly, the statements such as INSERTS are grouped in The transaction TXA at the commit time =5 to operate on the Dept_Table.

At commit time =10, transaction TXB has executed the following statement deleting row 720 'finance'.

At commit time = 15, transaction TXC has executed the following statement deleting row 722 (col. 13, lines 57-67; col. 14, lines 1-5; col. 14, lines 34-40);

At commit time =25, transaction T 5 having executed the following statement:

UPDATE Emp_Table SET Emp_value=Emp_value+1 WHERE emp_name=`Smith`;

DELETE FROM Emp_Table WHERE emp_name=`Miller`(col. 7, lines 1-10).

From the above discussion, the statements of the transaction TXA are submitted to commit time = 5 (as first session) to operate on Dept_table (as the first base relation). The statements of transaction T5 are submitted to commit time=25 (as second session) to operate on Emp_Table (as the second base relation).

Statements such as insert, delete or update are represented as different modification operations. Dept_table and Emp_table are represented as different base relations. Commit time = 5 is represented as first session. Commit time =25 is represented as second session.

As discussed above, the ordinarily skilled artisan would have found that both Ganesh'828 and Ganesh'943 are pertinent to Appellants' field of endeavor.

Clearly, they are analogous art. Therefore, it would have been obvious to a person of an ordinary skill in the art at the time the invention was made to apply Ganesh'943 teaching of partitioning transactions having modification statements by submitting some modification statements into commit times and grouping statements into a transaction to Ganesh'828 system in order to order to scheduling the transactions for preventing conflict when multiple transactions trying to modify database records at the same time and further minimize network traffic and achieve maximum performance.

Thus, the obviousness rejection of claim 1 and its dependent claims are proper.

D. Appellants argued that there is no teaching that the modification operations that operate on a set of one or more tuples of a first base relation are grouped by a controller.

Examiner respectfully disagrees. The above limitation is incorrect according to claim 22. The limitation "wherein the controller is adapted to group the modification operations on the set of one or more tuples of the first base relation into a transaction" is recited in claim 22.

As indicated in the Final Office Action mailed on 2/8/2008, the phrase "adapted to" in claims 20-22, suggests or makes optional but does not require steps to be performed or does not limit a claim to a particular structure does not limit the scope of a claim or claim limitation (See also MPEP § 2111.04). Thus, in this case, examiner interprets the term "adapted to" as optional but does not require steps i.e., "group the modification operations on the set of one or more tuples of the first base relation into a transaction" to be performed.

Alternative way:

Ganesh' 943 teaches transaction T5 commits at time 25 having executed the following statements:

UPDATE Emp_Table SET Emp_Value = Emp_value +1

Where emp_name ='Smith';

DELETE FROM Emp_Table WHERE emp_name = 'Miller' (col. 7, lines 1-10).

As shown in fig. 14, a processing unit also includes a main memory 1408, for storing dynamic data and instruction to be executed by the processor 1407. The main memory 1408 is used for storing temporary data or information during execution of instruction by the processor(s) 1407 (col. 21, lines 28-35).

The above information shows that the processor(s) 1407 is used to group the statements updates smith row and delete Miler row in the transaction T5. Smith row or Miller row is represented as a tuple. The Emp_Table is represented as a first base relation. Emp_name and emp_value are represented as a set.

Thus, Ganesh'943 teaches "the modification operations that operate on a set of one or more tuples of a first base relation are grouped by a controller".

E. Appellants argued that n view of the defective obviousness rejection of base claim 1 over Ganesh '828 and Ganesh '943, it is respectfully submitted that the obviousness rejection of dependent claims over Ganesh '828, Ganesh '943, and Anaya is also defective. Reversal of the final rejection of the above claims is respectfully requested.

Examiner respectfully disagrees. As discussed above the obviousness rejection of claim 1 over Ganesh's 828 and Ganesh'943 are proper and discloses all claimed limitation of claim 1; thus, it is respectfully submitted that the obviousness rejection of dependent claims over Ganesh '828, Ganesh '943, and Anaya is also proper.

F. Appellants argued that in view of the defective obviousness rejections of base claims, it is respectfully submitted that the obviousness rejection of claim 11 over Ganesh '828, Ganesh '943, Anaya, and Roffe is also defective.
Reversal of the final rejection of the above claims is respectfully requested.

Examiner respectfully disagrees. As discussed above the obviousness rejection of claim 1 over Ganesh's 828 and Ganesh'943 are proper and discloses all claimed limitation of claim 1; thus, it is respectfully submitted that the obviousness rejection of dependent claims over Ganesh '828, Ganesh '943, Anaya and Roffe is also proper.

G. Appellants argued that in view of the defective obviousness rejections of base claims, the obviousness rejection of claim 11 over Ganesh '828, Ganesh '943, Anaya, and Goedken is also defective. Reversal of the final rejection of the above claim is respectfully requested.

Examiner respectfully disagrees. As discussed above the obviousness rejection of claim 1 over Ganesh's 828 and Ganesh'943 are proper and discloses all claimed limitation of claim 1; thus, it is respectfully submitted that the obviousness rejection of dependent claims over Ganesh '828, Ganesh '943, Anaya and Goedken is also proper.

H. Appellants argued that in view of the defective obviousness rejection of base claim 12 over Ganesh '828 and Ganesh '943, it is respectfully submitted that the obviousness rejection of dependent claim 18 over Ganesh '828, Ganesh '943, and Cochrane is also defective. Reversal of the final rejection of the above claim is respectfully requested.

Examiner respectfully disagrees. As discussed above the obviousness rejection of claim 1 over Ganesh's 828 and Ganesh'943 are proper and discloses all claimed limitation of claim 1; thus, it is respectfully submitted that the obviousness rejection of dependent claims over Ganesh '828, Ganesh '943, and Cochrane is also proper.

I. Appellants argued that in view of the defective obviousness rejection of base claim 22 over Ganesh '828 and Ganesh '943, it is respectfully submitted that the obviousness rejection of dependent claim 21 over Ganesh '828, Ganesh '943, and

Ngai is also defective. Reversal of the final rejection of the above claim is therefore respectfully requested.

Examiner respectfully disagrees. As discussed above the obviousness rejection of claim 1 over Ganesh's 828 and Ganesh'943 are proper and discloses all claimed limitation of claim 1; thus, it is respectfully submitted that the obviousness rejection of dependent claims over Ganesh '828, Ganesh '943, and Ngai is also proper.

J. Appellants argued that in view of the defective obviousness rejection of base claim 22 over Ganesh '828 and Ganesh '943, it is respectfully submitted that the obviousness rejection of claim 23 over Ganesh '828, Ganesh '943, and Garth is defective. Reversal of the final rejection of the above claim is therefore respectfully requested.

Examiner respectfully disagrees. As discussed above the obviousness rejection of claim 1 over Ganesh's 828 and Ganesh'943 are proper and discloses all claimed limitation of claim 1; thus, it is respectfully submitted that the obviousness rejection of dependent claims over Ganesh '828, Ganesh '943, and Garth is also proper.

K. Appellants argued in view of the defective obviousness rejections of base claims, it is respectfully submitted that the obviousness rejection of dependent claims 24 and 25 over Ganesh '828, Ganesh '943, Garth, and Desai is also defective. Reversal of the final rejection of the above claims is therefore respectfully requested.

Examiner respectfully disagrees. As discussed above the obviousness rejection of claim 1 over Ganesh's 828 and Ganesh'943 are proper and discloses all claimed limitation of claim 1; thus, it is respectfully submitted that the obviousness rejection of dependent claims over Ganesh '828, Ganesh '943, Garth and Desai is also proper.

L. Appellant argued that in view of the defective obviousness rejection of base claims, it is respectfully submitted that the obviousness rejection of claim 26 over Ganesh '828, Ganesh '943, and Garth, Desal, and Papiemiak is also defective. Reversal of the final rejection of the above claim is respectfully requested.

Examiner respectfully disagrees. As discussed above the obviousness rejection of claim 1 over Ganesh's 828 and Ganesh'943 are proper and discloses all claimed limitation of claim 1; thus, it is respectfully submitted that the obviousness rejection of dependent claims over Ganesh '828, Ganesh '943, Garth, Desal and Papiemiak is also proper.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Cam Y Truong/

Primary Examiner, Art Unit 2169

Conferees:

/Tony Mahmoudi/

Supervisory Patent Examiner, Art Unit 2169

Mahmoudi, Tony, Supervisor Art Unit 2169

/Eddie C. Lee/

Supervisory Patent Examiner, TC 2100